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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,324	04/19/2001	Michael Cheiky	968-20-003	2536

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EXAMINER
CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
1746	9

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DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/839,324	CHEIKY ET AL.	
	Examiner	Art Unit	
	Jonathan S. Crepeau	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-20 and newly added claim 21. Claim 6 remains rejected under 35 USC §103 for substantially the reasons of record. Claims 1-21 are newly rejected under 35 USC §112, first paragraph, as necessitated by amendment, however claims 1-5 and 7-21 contain allowable subject matter as currently drafted. Claims 1-21 remain rejected under the doctrine of obviousness-type double patenting. Accordingly, this action is made final.

Terminal Disclaimer

2. The terminal disclaimer filed on August 8, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Serial No. 09/839,276 has been reviewed and is NOT accepted.

> The application/patent being disclaimed has been improperly identified since the number used to identify the application being disclaimed is incorrect. The application being disclaimed was identified as 09/839,324. However, this is the serial number of the instant application. It appears that the serial numbers of the two applications were transposed during the drafting of the terminal disclaimer.

Specification

3. The amendment filed September 29, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not

supported by the original disclosure is as follows: Applicant has amended the specification to state that hydrocarbon cross-link groups are "saturated." This term is not believed to be sufficiently supported by the originally filed application. The closest support for this recitation is the disclosure of 1,6-diiodohexane on page 6, line 4 of the original specification. However, the disclosure of one species is not believed to constitute a "representative number" of species required to establish possession of the genus. See MPEP §2163.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 4, 7, 10, and 21 now recite that the hydrocarbon groups are "saturated." This term is considered to introduce new matter into the application for the reasons set forth above.

Additionally, new claim 21 recites the term "diododecyl." This term is not an art-recognized term for a 12-carbon chain and thus introduces new matter into the application. The

application supports a hydrocarbon having 12 carbon atoms, but this hydrocarbon is properly termed "dodecyl." Accordingly, the recitation of "diododecyl" appears to be erroneous and also introduces new matter into the application.

Claim Rejections - 35 USC § 103

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over SU 651436 in view of Klug (U.S. Patent 3,754,877).

SU 651436 teaches a silver-zinc alkaline battery in the abstract. The battery comprises a separator made of crosslinked cellulose.

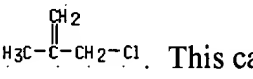
The reference does not expressly teach that the cross-linkages comprise hydrocarbons containing 4 to 16 carbon atoms which are cross-linked via a nucleophilic substitution reaction, as recited in claim 6. The reference further does not teach that no more than 10% of the available hydroxyl sites on the cellulose are crosslinked.

The patent of Klug is directed to gelled fuel compositions. In column 2, lines 17-43, the reference discloses a hydroxylalkyl cellulose which is cross-linked by olefin groups. The olefin group may comprise a methallyl group (derived from a methallyl halide), which has 4 carbon atoms (see col. 2, line 25).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Klug to cross-link the cellulose separator of the SU reference with an olefin such as a methallyl group. In column 2, line 31, Klug teaches that "in order to form a sufficiently rigid

gel for the purposes of this invention, the olefin-modified hydroxyalkyl cellulose must be crosslinked." The artisan, knowing that strength is an important property in a battery separator, would therefore be motivated to cross-link the cellulose separator of the SU reference with an olefin such as methallyl group.

It is recognized that in order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); MPEP §2141.01(a). In this case, the Klug reference is believed to be reasonably pertinent to the problem with which the inventor was concerned. Page 4, line 6 of the instant specification states that "this separator has higher mechanical strength than uncrosslinked separators." As noted above, the Klug reference is concerned with the "rigidity" of the cellulose. Accordingly, the Klug reference is believed to be analogous to the claimed invention.

Regarding the recitation that the cross-linking occurs via a nucleophilic substitution reaction, the methallyl halide of Klug would inherently react in this manner. The halogen atom of methallyl halide is attached to a sp3 hybridized carbon atom, as shown in the following formula of methallyl chloride:  . This carbon atom would inherently take part in a nucleophilic substitution reaction, as discussed on pages 222 and 819 of *Organic Chemistry: A Brief Course*, cited herewith.

Regarding the limitation that or that no more than 10% of the available hydroxyl sites on the cellulose are crosslinked, Klug teaches in column 4, line 30 that "in most cases a crosslinker concentration of about 0.2 to 10 percent based on the weight of the cellulose derivative will be employed." The crosslinker concentration is proportional to the number of crosslinked hydroxyl sites on the cellulose. Further, it is known that the strength of the final product is dependent on the number of sites used for crosslinking. Accordingly, the artisan would be motivated to adjust the amount of sites used for crosslinking in accordance with the desired strength of the separator. For a small battery with thin components, the desired strength and thus the amount of crosslinking would be relatively low, i.e., less than 10%. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8, 12, 13, 24, and 25 of copending Application No. 09/839,276 (U.S. Pre-Grant Publication No. 2002/0182510). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '276 application anticipate instant claims 1 and 5. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). Furthermore, the recitation in instant claims 3 and 6 that no more than 10% of the available hydroxyl sites are crosslinked is considered to be obvious to a skilled artisan. As stated above, the artisan would be motivated to optimize this parameter according to the desired strength of the final separator.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 10-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of copending Application No. 09/839,276 (U.S. Pre-Grant Publication No. 2002/0182510) in view of Klug and Turbak et al (U.S. Patent 4,352,770). The claims of the '276 application do not expressly disclose the deprotonizing step with inorganic base (instant claims 10 and 20), the addition of an iodide (claims 10 and 15), or the use of a DMAC/lithium chloride solution (claims 10 and 16-19). However, the patent of Klug would motivate the artisan to use an olefinic halide (i.e., iodide) as a cross-linking agent, as set forth above. Additionally, the patent of Turbak et al. is directed to a process for forming a shaped cellulose product comprising the step of dissolving the

cellulose in a solution of dimethylacetamide (DMAC) containing 3-15 wt% lithium chloride. The solution may comprise up to 16% by weight of cellulose (see col. 5, line 7). In column 1, line 24, Turbak et al. teach that "it is an additional object of this invention to provide a solvent system for cellulose from which high quality cellulosic products may be produced economically on a commercial basis." Accordingly, the artisan would be motivated to dissolve the cellulose of the '276 application claims in a solution comprising DMAC and lithium chloride. Therefore, instant claims 10-20 are considered to define an obvious variation of the process recited in the '276 application claims.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments/Declaration

10. Applicant's declaration filed under 37 CFR §1.132 filed August 8, 2003 has been fully considered but it is not persuasive. Applicant states that "[t]he references are from unrelated fields and there is no need or suggestion in the Swiss [Soviet] reference to lead one skilled in the art to Klug." However, it is the Examiner's position that the broad disclosure of cross-linking in the abstract of the Soviet reference would reasonably lead an artisan to the Klug reference, which is also concerned with cross-linking. The Examiner acknowledges that the Soviet reference and Klug are in different fields of endeavor, but this is not the sole criterion for analogy between references. As set forth above, Klug is concerned with the rigidity, i.e., strength of his polymer. This is believed to be reasonably concerned with the particular problem applicants were

concerned with. Thus, the Klug reference is believed to be analogous to the claimed invention. See MPEP §2141.01(a).

Additionally, Applicants, in their remarks, state that "[t]he term 'saturated' is inherent in the description of the nucleophilic substitution reaction of the alkylene dihalides." However, it is the Examiner's position that the term "saturated" is not inherent in Applicant's disclosure. Reference is again made to page 222 of *Organic Chemistry: A Brief Course*, which teaches that molecules having carbon-carbon double bonds (i.e., unsaturated molecules) are capable of participating in a nucleophilic substitution reaction. Thus, the term "saturated" is not inherent in Applicant's disclosure.

Allowable Subject Matter

11. Claims 1-5 and 10-21 contain allowable subject matter as currently drafted. However, an amendment to obviate the rejection under 35 USC §112, first paragraph may raise a new issue and/or cause the previous ground of rejection to be reinstated.

12. Claims 7-9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if the rejection under 35 USC §112, first paragraph was overcome.

13. The following is a statement of reasons for the indication of allowable subject matter:

Independent claims 1 and 10, and dependent claim 7 each recite, among other features, that the cross-links or cross-linking agent is/are a saturated hydrocarbon. The art of record does not teach or fairly suggest this limitation. The abstract of SU 651436 teaches a cross-linked cellulose xanthogenate, but does not fairly suggest that its cross-links are saturated hydrocarbons.

Klug teaches olefin (unsaturated) cross-linking groups, but does not fairly suggest using saturated hydrocarbon groups. Accordingly, claims 1-5 and 7-21 contain allowable subject matter as currently drafted.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051 (prior to December 17, 2003) or (571) 272-1299 (after December 17, 2003). The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 872-9310 (for non-final communications) or (703) 872-9311 (for after-final communications).

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

December 7, 2003

BRUCE F. BELL
PRIMARY EXAMINER
GROUP 1746